

19. Write a note on the morphology of nanoparticles and how physical and chemical characteristics depend on them?

20. Explain the term :

(3 + 3 + 4)

- (a) redox process,
 - (b) carboxy peptidase,
 - (c) oxygen carriers.
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APRIL/MAY 2024

**DCH22/GCH22 — INORGANIC
CHEMISTRY – II**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. How will you distinguish Crystal lattice and unit cell?
2. Define n-type semiconductor.
3. Define radioactive nuclide.
4. What do you mean by magic number?
5. What are the difference between cyclotron and synchrotron?
6. What is the principle source of stellar energy?
7. Define a nanoparticles.
8. What is morphology of a nanoparticles?
9. Write short note on iron sulphur proteins.
10. What role does the zinc ion play in the action of carbonic anhydrase?

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) What are the difference between X-ray and Neutron Diffraction? (5)

Or

- (b) What are the defects in solid? Explain. (5)

12. (a) Explain the term : ($2\frac{1}{2} + 2\frac{1}{2}$)

(i) high energy nuclear,

(ii) direct nuclear.

Or

- (b) Explain the term : ($2\frac{1}{2} + 2\frac{1}{2}$)

(i) photonuclear reaction,

(ii) thermonuclear reaction.

13. (a) Write short note on : ($2\frac{1}{2} + 2\frac{1}{2}$)

(i) fast breeder reactors,

(ii) carbon burning.

Or

- (b) What is neutron activation analysis? Explain it.

14. (a) Explain in detail how melting point and optical properties of nanomaterials depend on the size of nanoparticles.

Or

- (b) Write a note on applications of sensors using nanomaterials.

15. (a) Draw and explain the structure of chlorophyll and analyse the role of Mg is chlorophyll.

Or

- (b) Explain the role of sodium, potassium and calcium in biological system.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write a note on Band theory.

17. Explain the shell model of a nuclide. Using this how this can interpret about the nuclear activity of some nuclides?

18. Explain the terms : (3 + 3 + 4)

(a) particle accelerators,

(b) linear accelerators,

(c) radiometric titration.